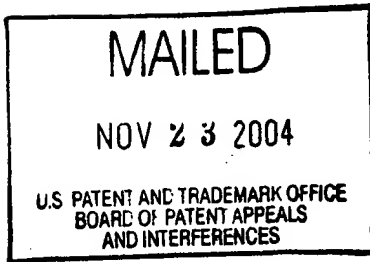


The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE



BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LAWRENCE KWONG LAM
and TIMOTHY EDWIN VAN ECK

Appeal No. 2003-2106
Application No. 09/604,662

ON BRIEF

Before HAIRSTON, KRASS, and BARRY, Administrative Patent Judges.
HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 24.

The disclosed invention relates to waveguides in an interferometer that are electrooptically modulated by at least two electrical signals.

Claims 1 and 20 are illustrative of the claimed invention, and they read as follows:

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1. An apparatus comprising:

- a first optical waveguide producing a first optical output;
- a first electrode substantially parallel to the first waveguide;
- a second optical waveguide producing a second optical output;
- a second electrode substantially parallel to the second waveguide; and
- a photo detector in the path of an interference pattern produced by the first and second optical outputs.

20. A method of measuring an input signal, comprising:

- producing an interference pattern based on the input signal;
- detecting a location of a null of the interference pattern;
- and producing an output signal based on the location of the null.

The references relied on by the examiner are:

Geary	4,747,688	May 31, 1988
Leuchs et al. (Leuchs)	5,172,185	Dec. 15, 1992

Claims 20 and 24 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Geary.

Claims 1 through 6, 13, 14, 16, 17 and 21 through 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over appellants' admitted prior art Figure 1 in view of Leuchs.

Claims 7 through 12, 15, 18 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over appellants' admitted prior art Figure 1 in view of Leuchs and Geary.

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Reference is made to the briefs (paper numbers 11 and 13) and the answer (paper number 12) for the respective positions of the appellants and the examiner.

OPINION

We have carefully considered the entire record before us, and we will sustain the anticipation rejection of claim 20, and reverse all of the rejections of claims 1 through 19 and 21 through 24.

Turning first to the anticipation rejection of claims 20 and 24, appellants argue (brief, page 5; reply brief, page 5) that Geary does not disclose "detecting a location of a null of the interference pattern" (claim 20), and an output signal "measured to determine the phase difference between two input optical signal" (claim 24). We agree with the examiner's contention (answer, page 4) that the dark fringe detected by detector A in Geary is a null (Figures 1 and 2; column 4, lines 60 through 66; column 5, lines 30 through 34). On the other hand, we agree with the appellants' argument that Geary is silent as to measuring a phase difference between two optical signals. Thus, the anticipation rejection of claim 20 is sustained, and the anticipation rejection of claim 24 is reversed.

Turning next to the obviousness rejection of claims 1 through 6, 13, 14, 16, 17 and 21 through 23, the examiner is of the opinion (answer, page 8) that it would have been obvious to one of ordinary skill in the art to "replace the coupler output of the Figure 1 prior art with the simplified waveguide output, as taught by Leuchs [Figure 2], to reduce the number of parts on the IOC." The appellants argue (reply brief, page 3) that:

The interferometer in [prior art] Figure 1 uses a combiner 122 to combine the signals from the modulated sections 118, 120 and produce the output 124 that emerges as modulated optical signal 126. There is no motivation to change that configuration. Leuchs et al. fails to suggest any benefits in modifying the configuration of Figure 1 to remove the combiner 122 and produce an interference pattern instead.

We agree with the appellants' argument. Nothing in the record before us supports the examiner's unsupported assertion that the replacement of the coupler output in prior art Figure 1 would have resulted in a reduction of the number of parts of the IOC (i.e., integrated optics chip). Thus, the obviousness rejection of claims 1 through 6, 13, 14, 16, 17 and 21 through 23 is reversed because the examiner's obviousness rationale is based on impermissible hindsight.

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The obviousness rejection of claims 7 through 12, 15, 18 and 19 is reversed because the teachings of Geary do not cure the noted shortcomings in the teachings of the admitted prior art and Leuchs.

DECISION

The decision of the examiner rejecting claims 20 and 24 under 35 U.S.C. § 102(b) is affirmed as to claim 20, and is reversed as to claim 24. The decision of the examiner rejecting claims 1 through 19 and 21 through 23 under 35 U.S.C. § 103(a) is reversed. Accordingly, the decision of the examiner is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

KENNETH W. HAIRSTON
Administrative Patent Judge

ERROL A. KRASS
Administrative Patent Judge

~~LANCE LEONARD BARRY~~
~~Administrative Patent Judge~~

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MCDERMOTT WILL & EMERY LLP
18191 VON KARMAN AVE.
IRVINE CA 92612-7107